

REMARKS

Applicants respectfully request reconsideration of the patent application in view of the foregoing amendments and reasons that follow.

Status of Claims:

Claims 21-29 and 31-38 are currently being canceled (claims 23-29 and 33-38 were withdrawn from consideration).

Claims 20 and 30 are currently being amended.

No claims are currently being added.

This amendment and reply amends and cancels claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate define status identifier.

After amending and canceling the claims as set forth above, claims 20 and 30 are now pending in this application.

35 U.S.C. § 112, 1st Paragraph Rejection of Specification and Claims:

In the Office Action, the specification was objected to under 35 U.S.C. § 112, 1st paragraph, as failing to provide an enabling disclosure, and claims 20-22 and 30-32 were rejected under 35 U.S.C. § 112, 1st paragraph, for the same reasons as given in the objection to the specification. This is traversed with respect to the presently pending claims, for at least the reasons given below.

With respect to the phrase "perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer" as recited in claims 20 and 30, page 2, 3rd full paragraph of the specification describes that "an object of the present invention is provide to a system and a LAN connecting device for performing a maintenance test between LAN connecting devices . . . at a signal level or code level capable of recognizing up to the OSI layer 2 even for LAN connecting devices such as a bridge, switch, repeater and the like not having a protocol up to layer 3". And, as described on page 12, 2nd full paragraph of the specification, "As described above, a system for performing a maintenance test between LAN connecting devices and a LAN connecting device of the present invention . . . make it easy to locate a failure position at the time of installation or failure". Therefore, the phrase "perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer" as recited in claims 20 and 30 is sufficiently supported by the specification.

The phrase "constructing maintenance data instructing the maintenance test processing to the other of said LAN connecting devices with a frame format ~~the signal~~ of the layer 2 of the OSI

layer so as to perform the maintenance test processing ~~different from said LAN communication processing, converting the maintenance data into the optical signal of said second wavelength through a second optical module, and outputting the converted maintenance data in the optical signal of said second input/output wavelength to said optical collector~~" as recited in claim 20 is supported by the description on page 16, 6th paragraph to page 17, 1st paragraph of the specification, and in Figure 3 of the drawings. Namely, this portion of the specification describes that "Next, a maintenance data communication is . . . outputted to the optical interface portion 202". Further, page 24, 2nd paragraph to page 25, 2nd paragraph of the specification and Figures 10 and 11 of the drawings provide support for the above phrase in claim 20. For example, this portion of the specification describes that "Figure 10 shows the layer 2 frame format . . . the switch circuit 1003 identifies the transit side MAC controller and sends the data to this MAC controller". Therefore, the phrase "constructing maintenance data instructing the maintenance test processing to the other of said LAN connecting devices with a frame format ~~the signal~~ of the layer 2 of the OSI layer so as to perform the maintenance test processing ~~different from said LAN communication processing, converting the maintenance data into the optical signal of said second wavelength through a second optical module, and outputting the converted maintenance data in the optical signal of said second input/output wavelength to said optical collector~~" in claim 20 is fully sufficiently supported by the specification and the drawings.

Furthermore, the phrase "converting the maintenance data into the optical signal of said second wavelength through a second optical module, and outputting the converted maintenance data in the optical signal of said second input/output wavelength to said optical collector" is supported by the description on page 17, 1st paragraph of the specification and Figure 3 of the drawings. Namely, this portion of the specification describes that "Next, the passing data of maintenance data communication . . . are converted from an electric signal into an optical signal of 1550 nm in wavelength in an optical module B 212 . . . and are outputted to the optical interface portion 202". Therefore, the phrase "converting the maintenance data into the optical signal of said second wavelength through a second optical module, and outputting the converted maintenance data in the optical signal of said second input/output wavelength to said optical collector" in claim 20 is sufficiently supported by the specification and the drawings.

Also, the phrase "distributing/outputting the separated first ~~input/output~~ wavelength and the second ~~input/output~~ wavelength" as recited in claims 20 and 30 is supported by the description on page 17, 2nd paragraph of the specification and Figure 2 of the drawings. Namely, this portion of the specification describes that "input signals from the optical interface portion 203 are distributed

through the optical demultiplexer 213 to an optical module B 215 as an optical signal of 1550 nm in wavelength . . . outputted . . . to the electric interface portion 201". Therefore, the phrase "distributing/outputting the separated first ~~input/output~~ wavelength and the second ~~input/output~~ wavelength" as recited in claims 20 and 30 is sufficiently supported by the specification and the drawings.

Still further, the phrase "performing the maintenance test processing of the device itself by input of said maintenance data which is constructed by a frame format ~~the signal~~ of the layer 2 of the OSI layer, the frame format obtained by converting by the optical signal of said second ~~input/output~~ wavelength distributed/outputted by said optical demultiplexer into an electric signal through a second optical module", as recited in claim 20, and the phrase "the frame format obtained by converting by the optical signal of said second ~~input/output~~ wavelength distributed/outputted by said optical demultiplexer into an electric signal through a second optical module" are supported by the description on page 16, 6th paragraph to page 17, 1st paragraph of the specification. Namely, this portion of the specification describes that "Next, the passing data of maintenance data communication . . . and are outputted to the optical interface 202". Please also refer to page 24, 2nd paragraph to page 25, 2nd paragraph of the specification, and Figures 10 and 11 of the drawings. Namely, this portion of the specification describes that "Figure 10 shows the layer 2 frame format . . . the switch circuit 1003 identifies the transit side MAC controller and sends the data to this MAC controller". Therefore, the above two phrases as recited claims 20 and 30 are sufficiently supported by the specification.

Accordingly above, presently pending claims 20 and 30 are sufficiently supported by specification and the drawings, whereby these claims fully comply with 35 U.S.C. § 112, 1st paragraph. With respect to the rejection of claims 21, 22, 31 and 32, those claims have been canceled, thereby mooting the rejection of those claims.

Claim Rejections - 35 U.S.C. Section 102, paragraph (e):

In the Office Action, claims 20 to 21 and 30 to 31 were rejected under 35 U.S.C. Section 102 (e), as being anticipated by U.S. Patent No. 5,907,417 to Darcie et al. This rejection is traversed with respect to presently pending claims 20 and 30, for at least the reasons given below.

The Office Action asserts that:

Darcie discloses a system for performing a maintenance test between LAN connecting devices in which a plurality of LAN connecting devices that perform only communication signal processing from a layer 1 to a layer 2 of an OSI layer are connected

to each other through a circuit using an optical fiber as a physical medium configured such that communication is possible between the LAN connecting devices using an optical signal of a first input/output wavelength used in ordinary LAN communication and an optical signal of a second input/output wavelength used in maintenance test communication relating to communication on said circuit connecting the LAN connecting devices to each other (fig. 1, fig. 3, fig. 4 and col. 2 L57 to col. 3 L21),

wherein one of said LAN connecting devices comprises:

an optical multiplexer for collecting/multiplexing the optical signal of said first input/output wavelength and the optical signal of said second input/output wavelength and transmitting the collected optical signals to said circuit (col. 1 L40-67, fig. 1, 3, 4);

a first communication data control part for performing ordinary LAN communication processing and outputting the communication data outputted by the LAN communication processing in the optical signal of said first input/output wavelength to said optical multiplexer (col. 3 L40-67); and

a first maintenance data control part for constructing maintenance data instructing the maintenance test processing to the other of said LAN connecting devices with the signal of the layer 2 of the OSI layer so as to perform the maintenance test processing different from said LAN communication processing and outputting the maintenance data in the optical signal of said second input/output wavelength to said optical collector (col. 3 L40-67 and fig. 1), and

wherein the other of said LAN connecting devices comprises:

an optical demultiplexer for separating/demultiplexing the optical signal transmitted by said circuit to said first input/output wavelength and said second input/output wavelength and distributing/outputting the separated first input/output wavelength and the second input/output wavelength (col. 1 L40-67, fig. 1, 3, 4, col. 4 L12-27);

a second communication data control part for performing the ordinary LAN communication processing by input of said communication data in the optical signal of said first input/output wavelength distributed/outputted by said optical demultiplexer (col. 4 L12-44, col. 5 L5-60); and

a second maintenance data control part for performing the maintenance test processing of the device itself by input of said maintenance data constructed by the signal of

the layer 2 of the OSI layer by the optical signal of said second input/output wavelength distributed/outputted by said optical demultiplexer (col. 6 L37-67 and fig. 1),

wherein said LAN connecting device performs the maintenance processing by communication by the optical signal of said second input/output wavelength of said maintenance data constructed by the signal of the layer 2 of the OSI layer (col. 6 L37-67, col. 7 L16-67 and fig. 3).

Darcie describes a system that includes a central office (CO), a plurality of optical network units (ONUs), optical fibers connecting the CO and ONUs, and a remote node over the optical fibers between the CO and ONUs, relaying signals between the CO and ONUs. The remote node includes a WGR (Wavelength Grating Router) which has a function for multiplexing optical signals from each ONU and a function for demultiplexing the signals multiplexed. The WGR changes input/output wavelength of the optical signal for each ONU and performs the maintenance test with transmitting and receiving the optical signals of input/output wavelength used for the maintenance test communication.

In Darcie, the remote node relaying signals between the CO and ONUs, however, primarily is a router itself (see column 3, lines 8-10 and lines 60-62 of Darcie). Thus, it is clearly the case that the remote node uses the protocols of the layer 1, layer 2 and layer 3 of the OSI layer. Therefore, the technology disclosed in Darcie is totally different from the invention as recited in claim 20, because the LAN connecting device according to the present invention corresponds to target equipment such as bridges, switches, repeaters that can only use the protocols of the layer 1 and layer 2 of the OSI layer (and thus cannot use the protocol of the layer 3 of the OSI layer).

Further, the invention according to claim 20 includes features in which the maintenance test processing is performed by communicating the maintenance data with the frame format of the layer 2 of the OSI layer using the optical signal of the second wavelength as distinct from the first wavelength for the communication data. However, Darcie does not disclose or suggest such features as recited in claim 20 at all. In other words, the technology disclosed in Darcie 1 is totally different from the invention as recited in claim 20.

Therefore, claim 20 is not anticipated by Darcie since the claimed LAN connecting device can only use the protocols of layer 1 and layer 2 of the OSI layer, and since the maintenance test processing as recited in claim 20 is performed by communicating the maintenance data with the frame format of the layer 2 of the OSI layer using the optical signal of the second wavelength.

Likewise, claim 30 is not anticipated by Darcie for similar reasons as given above with respect to claim 20.

Accordingly, presently pending independent claims 20 and 30 are not anticipated by Darcie.

Claim Rejections - 35 U.S.C. Section 103, paragraph (a):

In the Office Action, claims 22 and 32 were rejected under 35 U.S.C. § 102 (e), as being obvious over Darcie in view of U.S. Patent No. 5,523,868 to Hawley. Due to the cancellation of claims 22 and 32, this rejection is now moot.

Conclusion:

Since all of the issues raised in the Office Action have been addressed in this Amendment and Reply, Applicants believe that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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